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Ecuador, with a geological treatise by W. Reiss. The species noted are Mylodon (sp), *Equus andium*, *Protauchenia reissii*, new genus and species; Cervus, sp., *Cervus chilensis*, *Mastodon andium* and *Machærodus neogæus*. The authors believe in the total extinction of the horse in America and its reintroduction by the Spaniards.——M. P. J. Van Beneden (Ext. des Bull. de l'Acad. Roy. Belg), describes some bones of a Sphargis found in brick-earth of the upper Oligocene period. He names the species *S. rupeliensis*. Fossil remains of the leathery turtle have to a great extent escaped palæontologists, and these bony dermal plates have been described as belonging to Ostracion, and have even been associated with Zeuglodon and with Armadillos. Four species of fossil Sphargis are not known, the others being *S. pseudostracion*, *S. psephophorus*, and the Alabama species that was associated with Zeuglodon.——The last number of the Quarterly Journal of the Geological Society contains notes on Brocchi's collection of Subappenine shells, by J. G. Jeffreys. Brocchi Conchologia fossile Subappenina was published in 1814, and was a remarkable work for a time when palæontology was in its infancy. Many of the errors are here eliminated. Mr. Jeffreys concludes that the deposits in which these shells occur were laid down in seas not exceeding fifty fathoms in depth, and states that not the slightest difference can be detected between any of the fossil species in the Pliocene formation which still survive, and their descendants of the present day.

BOTANY.[1]

NOTES ON FUNGI (*Continued from the May number*).—The different species of Polyporus vary much in size. The specimen of *Polyporus berkeleyi* Fr., from which the specimens in North American Fungi were taken, was two feet across and weighed fourteen pounds, while *P. cupulæformis* B. & Rav., is only from one-eighth to one-quarter of an inch in diameter, with pores so fine as to be hardly visible without a lens. The external surface is also very variable. In *P. lucidus* the pileus is of a chestnut red color and smooth as if varnished, while in *P.* (Trametes) *hydnoides*, a subtropical species, the surface of the pileus is thickly clothed with a coat of black stiff bristle-like hairs. A very curious and unusual form of Polyporus is seen in *P. pendulus* B. & C., which grows on the under side or in cavities inside of rotten logs of oak and pine. The pileus is obconic in shape, ¼–½ an inch across, and is *suspended* by a slender stem about half an inch long. When mature it bears a striking resemblance to the basal portion of a tufted specimen of *Hemiarcyria rubiformis* from which the capillitium and spores have disappeared, and being of a similar color to this little Myxogaster it is, at a casual glance, easily mistaken for it. It also bears some resemblance to a small nest of the red wasp hanging from the under side of a dead limb or stick, though the color is different. Still more remarkable is the species found on spruce trees (*P. volvatus* Pk.) in New York, and afterwards on *Pinus contortus* in California by Dr. Harkness. In this species the projecting margin of the pileus is incurved so as almost to enclose the pores, leaving only a small opening, ⅛–¼ of an inch across. Very similar to this, but probably specifically distinct, is a Polyporus collected in Oregon by W. C. Carpenter, a correspondent of Isaac C. Martindale, of Camden, N. J. In the specimen seen the pores are entirely inclosed and occupy the upper surface of the cavity. The specimen appears to have grown on the upper surface of a fallen tree or perhaps on a horizontal branch. It is oblong in shape, about one and a-half inches long by one inch high and broad, and is of a yellowish color. It appears to differ from *P. volvatus* in its rather larger pores with acute white mouths. The area occupied by the pores also is not so definitely limited, the length of the pores gradually decreasing from the center till the marginal ones are mere points without any appreciable depth. This has been named provisionally *Polyporus inflatus* Ell. & Martindale, but additional specimens and information will be requisite to describe more fully all its characteristic features.—*J. B. Ellis, Newfield, N. J.*

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[1] Edited by **PROF. C. E. BESSEY, Ames, Iowa.**

STRUCTURE AND PHYSIOLOGY OF THE PASSION FLOWER (*Passiflora lutea*).—The passion flower of Ohio is greenish-yellow, about two centimeters broad, having a crown tinged with purple. From the center of the crown, surrounded at its base by the honey gland, rises the column of stamens, united into a sheath which above again separates into five filaments bearing the anthers. Included by this column of stamens is a stalk which bears the ovary. There are three styles. In case the flower does not set seed it falls off at a joint a short distance below the flower (Fig. 4). In plants grown in my room, none of which were accessible to in-

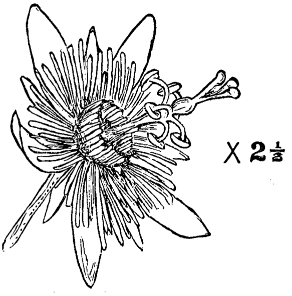

Fig. 1.

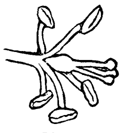
Fig. 2.

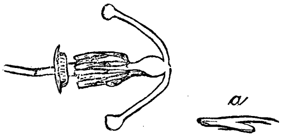

Fig. 4.

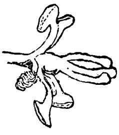
Fig. 3.

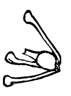
Fig. 5.

FIG. 1.—*Passiflora lutea*, flower in male state. FIG. 2.—Stamens (and styles) just before maturity. FIG. 3.—Stamens at maturity. FIG. 4.—Female state of flower, stamens and styles only represented, *a*, one of the stamens. FIG. 5.—The pistil.

sects, all the flowers fell off, but in the woods this was not the case. Since my plants were perfectly healthy, I concluded that this flower requires insect agency, and is sterile in case it does not receive it. The structure of the flower also leads to this conclusion.

In the bud both stamens and styles have an upright position, the anthers being intorse (Fig. 2)! The stamens begin to spread out, take a horizontal position and soon begin to recurve. The anthers at the same time become first vertical, *i. e.*, at right angles to the filaments at that time. Then they bend a little further on the filaments, and when these have recurved they appear somewhat as if they had been extorse in the beginning (Figs. 3 and 1). In this condition they are prepared to leave pollen on the backs of visiting insects as they take the honey from the cup-shaped gland surrounding the base of the column of stamens. Then the stamens, having fulfilled their mission, move slowly onward until the anthers are pressed against the column, in which shape they look decidedly as if they had at first been extorse (Fig. 4 *a*). In this shape they are effete, since the pollen must fall on the back of the insect to fertilize the plant. The styles have by this time separated and recurved, and taken the place which the stamens formerly occupied (Fig 4). The styles, however, keep a rather straight appearance when they have once the desired position as represented in Fig. 5. This then is the female state of the flower, and if the stigmas do not receive pollen the flower falls off. This is then a distinct case of proterandry, showing correlative motions in styles, filaments and in the anthers at their place of attachment. I have not found insects upon the flower, but the extreme rarity of the plant in this locality is a sufficient reason. The statements above are enough to show that there must be such visitors. The stigmas never touch the anthers in this species.—*Aug. F. Foerste, Granville, Ohio.*

CONSPECTUS GENERUM DISCOMYCETUM HUCUSQUE COGNITORUM. DISPOSUIT P. A. SACCARDO.—In this Conspectus the carpological system of classification adopted in the first and second volumes of the Sylloge is applied to the Discomycetes. As the author invites criticism, it will be proper to make a few suggestions:

Instead of adding to Mitrula the colored species of Geoglossum with hyaline sporidia, it would seem more in accordance with the natural affinities of the species to remove from Mitrula to Geoglossum some of the species with clavate or subcylindric heads as suggested by Cooke in Mycographia. It may also be questioned whether it is well to found a genus on *color* alone, as appears to be the case with the proposed genus Microglossum. The propriety of adopting the genus Neolecta is also doubtful, differing as it does from Spathularia only in its globose spores. Helotidium does not seem sufficiently distinct from Helotium, nor does

Pirottæa seem necessary, differing from Mollisia only in its septate hairs scattered over the outer surface of the excipulum.

From the section Hyalodidymæ of Pezizeæ, Bisporella and Lanzia might be removed to Tapesia, Niptera to Mollisia and Helotiella taken back to Helotium, and under Sticteæ, Propolidium might be left under Propolis. To all these changes there can be no valid objection, except the uniseptate sporidia, and it would seem better to disregard this character than to remove these species from that place in the series where all their other characters would naturally seem to place them. For the same reason it would be better not to separate Hæmatomyxa from Hæmatomyces.

These suggestions are made merely as the expression of my opinion and not in any dictatorial spirit, knowing that each must do his work in his own way. Meanwhile, thanks are due to the learned mycologist of Padua for having condensed and made accessible the scattered literature of the Pyrenomycetes in the two volumes of the Sylloge already published, and it is certain that the succeeding volumes will meet with a ready welcome.—*J. B. Ellis, Newfield, N. J., May 13, 1884.*

THE FLOWER OF THE GLADE MALLOW (*Napæa dioica*).—The glade mallow is a diœcious plant. There are usually 15–30 anthers in the male plant, the filaments below being united into a solid column enclosing no styles, as is usual when the column they form is a hollow one. At an early date the anthers, then tinged with purple, burst from the small bud, showing the petals as a mere edging near the border of the calyx. Later, however, the petals grow more rapidly and cover the stamens as is usual in flowers just before anthesis. The styles never break from the bud in this way, but wait for the expansion of the flower. There are as many styles as there are carpels in the gynœcium, usually 6–10. Surrounding the styles are filaments usually without anthers or bearing small insignificant ones of no value to the plant. These plants are virtually unisexual and female, the male organs being ineffective. The plants, as said above, have the sexes separated so that insect agency becomes necessary for the fertilization of this species. I have noticed a middle-sized wasp effecting this process, but the infrequency with which such visits are carried out, and the few individuals usually found, together with the diœciousness of the flowers, account for the incapability of this plant to compete with ordinary plants in its neighborhood.

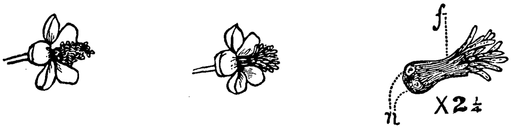

Fig. 1. Fig. 2. Fig. 3.

FIG. 1.—*Napæa dioica*, male flower. FIG. 2.—Female flower. FIG. 3.—Gynœcium of the same, showing the sterile filaments (*f*) surrounding the styles, also the nectaries (*n*) at their base.

A wasp generally starts with one cluster of plants, gathering the honey until it has visited all the flowers it cares to, these are apt to be all of one sex. Then it starts for another, which may happen to be of another sex. If so, its supply of pollen is much too small to fertilize many ovaries, and these visits are not numerous enough to accomplish a full fertilization. Generally but few seeds are capable of germination. The corolla is white, 8^{mm} across.—*Aug. F. Foerste, Granville, Ohio.*

BOTANY AT THE APPROACHING MEETING OF THE A. A. A. S.—It is desirable on many accounts that there should be a large attendance of botanists at the meeting of the American Association for the Advancement of Science in Philadelphia in September. The location of the meeting is favorable to a larger attendance than ever of those interested in the study of plants, and this, together with the Botanical Club of the Association organized last year at Minneapolis, will, without doubt, bring out many who have not lately attended the meetings. May we not urge upon every botanical reader of the NATURALIST that he arrange his affairs so as to be able to attend?

And may we not, also, urge that the botanists who come to the meeting, bring solid and *condensed* papers, both for Section F of the Association and for the Botanical Club?—*C. E. B.*

ERRATUM.—In the article on Red Clover in New Zealand, on page 629 (June number), line 13 from the top, should read, "That *red* clover does produce its seeds in this colony." The change of one small word entirely changed the meaning of the sentence.

BOTANICAL NOTES.—Professor C. R. Barnes records and figures in the May *Botanical Gazette* the occurrence of cork between the annual layers in the stem of *Catalpa speciosa.* It is difficult to account for the presence of cork in such an anomalous position.——Two new species of Rubus (viz. *R. caldesianus* and *R. brachybotrys*), are described by W. O. Focke in the April number of *Nuovo Giornale Botanico Italiano.*——The last number (130) of the *Journal of the Linnean Society* contains articles of unusual interest, several of which we hope to present in summarized form ere long. They are as follows: *Alnus richardsoni,* a fossil fruit from the London clay; On the origin of placentas in the tribe Alsineæ of the order Caryophylleæ; Reproduction of Zygnemaceæ; Structure of the Stem of *Rhynchopetalum montanum;* Development of Starch Grains in the laticiferous cells of Euphorbiaceæ; The Organs of Secretion in the Hypericaceæ.——We have examined the little volume on "Flowerless Plants," by D'Anvers, which constitutes No. IV. of Putnam's "Science Ladders." It would serve excellently in the hands of an intelligent teacher as a reading book for children in the public schools. It is to be regretted that there are so many errors and slips here and there throughout the book. It needs to be re-edited.——The "Times of Linnæus" is the botanical title of an unbotanical book lately brought out by

Jansen, McClurg & Co., of Chicago. It is a pleasantly written romance, but it contains very little about Linnæus, and still less about botany.——Dr. Parry's paper on Chorizanthe, consisting of a revision and rearrangement of the annual species, first published in the Proceeding of the Davenport Academy of Sciences, has been republished in pamphlet form. It is a contribution of great value.

ENTOMOLOGY.

THE TRANSFORMATIONS OF NOLA.—The position of the genus Nola has long been an uncertain one. By some of the older authors, notably Hübner, the species were placed among the Pyralidæ, and Stainton in his Manual of British Butterflies and Moths regards the genus as forming "Family IX, Nolidæ" under the Pyralites, though he says: "One little group, the Nolidæ, is by many recent authors, and perhaps with reason, referred to the Bombycina, being placed with family Lithosidæ." The genus is now generally placed among the Lithosians. In our Synopsis of Bombycidæ we omitted to mention it, partly on account of want of specimens and partly perhaps from supposing it not to be a true Bombycid. Mr. Grote was the first American author to enumerate it in his New Check List of North American Moths, 1884, and to include it among the Lithosiæ.

Having reared *Nola ovilla*, my attention has again been drawn to its systematic position, which seems without much doubt to be properly among the Lithosiæ and near Clemensia.

I have found the larva frequently on the oak in September both in Maine and Rhode Island. Its habit is unmistakably Lithosian; it differs however from Arctian and Lithosian larvæ in having one less pair of abdominal legs, having but four pairs, whereas the caterpillars of the Lithosiæ and Arctians have an additional pair, *i. e.*, ten abdominal legs in all.

When I first discovered the larva of *Nola ovilla* I supposed it to be near Crocota. It was found to be common on the leaves of the oak in Maine, Sept. 6th.

The body is broad and much flattened, rather short, with four pairs of well developed abdominal feet; the first pair being situated on the fourth abdominal segment. The head is not very large, three-fourths as wide as the body; black, with a few paler irregular lines. The body is dirty-whitish, with a dark linear dorsal line, a dark dorsal discoloration behind the head, another in the middle of the body, and a third near the end.

The body is hairy, though not densely so; on each segment are four dorsal tubercles from which radiate short dusky hairs; on the side is a larger and longer tubercle from which arise lateral very long hairs, being as long as the body is broad; some black hairs are mixed with the dirty-whitish ones. The larger and most of the shorter hairs are simple, not barbed, but the shortest, smallest hairs are finely though slightly barbed, the barbules short.